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# THE FARM KITCHEN AS A WORKSHOP

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**A**BOUT 8,000,000 WOMEN work every day, and most of them many hours a day, in the farm kitchens of the United States. Making these kitchens the well-ordered workshops they deserve to be because of the importance and amount of work done in them would result in lightening and making more enjoyable the work of a large proportion of these women. It is the purpose of this bulletin to give information and make suggestions that will be helpful in doing this.

Contribution from the States Relations Service

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# THE FARM KITCHEN AS A WORKSHOP.<sup>1</sup>

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**T**HE FARM KITCHEN has been, and too often is at present, living room, dining room, washroom, laundry, entry from outdoors, and passageway to other parts of the house, as well as cookroom. Even in houses where it is possible to use the kitchen for the preparation of food only, it is very often far too large and is used for work which might better be done elsewhere.

The use and consequently the size and location of the kitchen vary greatly in different parts of the country. The present tendency is toward small, compact kitchens used only for the preparation of food. However, climate affects such matters; for instance, the detached or semidetached kitchen of the far South may be logical and desirable in so far as it means a cooler house. Even so, it means more steps and added cost of construction.

Each housekeeper must study her own conditions and decide whether it is best for herself and her household to make the kitchen a "general-purpose" room, or whether another plan is feasible and will result in more comfort for all.

## LOCATION OF THE KITCHEN.

The best location for the kitchen is on a corner of the house or in a wing or an ell where there can be windows on at least two sides, so as to obtain light from more than one direction and cross ventilation. Whether the chief exposure shall be north, east, south, or west is a

<sup>1</sup> Prepared under the direction of C. F. Langworthy, Chief, Office of Home Economics.

matter governed by individual preference and local conditions. A kitchen which receives the morning sun is usually desirable.

The kitchen, as well as all other rooms in the farmhouse, should be so located with reference to the barn and other outbuildings that the prevailing winds will not bring unpleasant odors or flies from them. Also, if possible, it should be in a part of the house where dust will not be blown through the open windows and doors from the road. Seeding bare ground around the kitchen and making the necessary paths of cement or some similar permanent material will also keep much dust from being blown and carried into the kitchen as well as make the view more attractive. A tidy, well-ordered back yard can not fail to give pleasure to the workers indoors. Undesirable features in the view can often be cut off by a hedge or a screen of vines, and the placing of a shrub or group of flowering plants will often do much to improve the outlook.

### RELATION TO OTHER PARTS OF THE HOUSE.

While the kitchen is the center and workshop of the home, its work also extends more or less to other parts of the house. In planning or building a home, it is of greatest importance that the relation of the kitchen to the other rooms be considered. The kitchen work is most closely associated with the pantry, the dining room, and the cellar, woodshed, or other storeroom. These should be as near and convenient as possible to the kitchen so that the journeys which must be made so often between these rooms will be short, thus saving many steps and much time.

Other parts of the house which are closely related to the kitchen, although to a less extent, are the entry, or other place where wraps are left; the washroom; the laundry; the living room; and the bedrooms, where children must frequently be cared for. Wherever possible these rooms should be within easy access of the kitchen.

The pantry should be so located that it is convenient to both kitchen and dining room, which means that it must be near or adjacent to both. To meet the latter condition, it is often placed between the dining room and the kitchen and is then designed to be used both for the preparation of food and for the storage of food, food supplies, china, table linen, kitchen towels, etc., and has the added advantage of shutting off much of the noise and odor of cooking. If it is narrow in proportion to its length and located lengthwise between the two rooms, it does not very appreciably increase the distance which must be traveled from the kitchen to the dining room.

Two pantries are sometimes desirable. One of these is generally used for the preparation of food and storage of food and supplies, while the other is used as a serving pantry and contains counter space,

shelves, and drawers for the storage of dishes and table linen, and a sink for washing the dishes. In this case the sink in the kitchen would be used for washing and cleaning meat, vegetables, and cooking utensils.

Space should be provided in the kitchen and within easy access of the pantry and dining room for the worktable, sink, stove, and ice box. It is also desirable that provision be made for filling the ice box from either the outside of the house or the entry, so that the person filling it will not be obliged to enter the kitchen. This will save much mopping and cleaning. Refrigerators can be purchased which are fitted with a door on the side or back of the ice chamber, and an opening corresponding to this door may be cut in the wall of the house and the chest filled from outside. If a screen is provided, the door may be left open in winter, so that the food may be kept cold without ice. When this is done, the window frame should be tightly joined to the refrigerator, so that cold air may not come into the kitchen as well.

A shed or bin for the storage of fuel, and other general storage room, should be located within easy access of the kitchen and on the same level with it.

A separate room should be provided for laundry work wherever possible. There should also be a washroom and place for those coming in from out of doors to leave their coats, overalls, and muddy boots and overshoes. Such a room should be on the shortest and most direct line of travel from the barns to the dining room, so that there will be no temptation to use the kitchen instead for these purposes. Brooms, mops, and other cleaning equipment may be conveniently stored in this room or a closet leading from it. The washroom is sometimes combined with the laundry, and although this may not be an ideal arrangement, it is preferable to using the kitchen as a washroom. For sanitary, esthetic, and other reasons, if either a bedroom or a bathroom is needed on the ground floor, it should not open directly into the kitchen or the dining room.

The kitchen, and, so far as possible, all of the rooms, pantries, and passageways into which the housekeeper is likely to go often from the kitchen should be on the same level. Steps between kitchen and dining room, or kitchen and porch, waste time and strength, are dangerous, and may be the cause of broken dishes and, what is worse, broken bones. Moreover, in new buildings they add to the cost of construction, while in remodeled houses, although they may simplify problems in building, they lessen convenience. If for any reason kitchen, dining room, and storerooms can not be on the same level, the kitchen should be where most light and air are available.

Basement kitchens are undesirable because the extra steps, the dampness, poor ventilation, and lack of light which are likely to pre-

vail in such rooms may affect the health of the worker and favor the activity of bacteria and molds which cause the spoiling of food. If, however, there must be a basement kitchen, a dumb-waiter, or "lift," is an important and useful addition.

A refrigerator, a cold pantry, a window box, or a food safe should be on the same level as the kitchen to save time and labor and for sanitary reasons. Where the kitchen is on the ground floor and the food must be stored in the cellar, a dumb-waiter is again desirable.

### SIZE OF THE KITCHEN.

In determining the size of the kitchen the housekeeper must, first of all, make a decision regarding the uses to which the kitchen is to be put. If the meals are eaten in the kitchen a larger room is required than if it is used for cooking only. A small kitchen may serve if the farm is near a town where supplies and cooking utensils may be purchased as desired, and where dependence is not placed on farm helpers who must of necessity be inmates of the farmhouse, while a much larger kitchen is required on a farm remote from the base of supplies, where many people, including farm helpers as well as the farmer's own family, must be fed, and where provision must be made for the storage of large quantities of supplies and a much greater number of cooking utensils. Where the kitchen is used only for the preparation of food for an average family, 120 square feet of floor space is ample.

On the large farm during harvest the feeding of numbers of extra men, or extra work, such as fruit and vegetable canning in the farmhouse, causes a temporary demand for a large kitchen. It is better, however, to have an extra kerosene stove and to establish a temporary kitchen and dining room on a porch, in a shed, or in another room for such occasional use than to have a large kitchen and to travel over its great distances all the year around.

### FLOORS, WALLS, CEILING, AND WOODWORK.

All surfaces in the kitchen, whether on floor, walls, or ceiling, should as far as possible be plain and free from cracks, ridges, moldings, and raised forms of ornamentation, for such places not only collect dust and dirt and thus increase the difficulty of keeping a room clean, but also may harbor ants, roaches, and other pests. The materials used in the kitchen on either walls or floor should be nonabsorbent and easy to keep clean.

#### FLOOR.

What is the best material for the kitchen floor, or the most practical finish, or the most satisfactory covering, is a much discussed

question. All agree, however, that the unfinished wooden floor is hard to clean, and painting, oiling, or covering it with some washable material will save much labor. An unfinished wood floor requires frequent scrubblings, which no matter how thorough, can not remove the spots and stains from some kinds of wood, while they cause the surface of others to sliver and become rough.

Maple is one of the woods most used for kitchen floors. It is smooth and very durable and when oiled is proof against grease and water stains. Long-leaf, or Georgia, pine and Douglas fir, or red spruce, are other desirable kinds and may be painted or oiled. Any kind of wooden flooring should be well seasoned before it is laid, to lessen the shrinking and swelling due to changes in temperature and atmospheric conditions. If there are cracks in the floor, they should be filled with putty or, better, with one of the special preparations for the purpose.

There are a variety of concrete and so-called "composition" floor materials now on the market which are advertised for use in kitchens. They are often easy to clean and do not absorb grease and water when new, but some of them tend to crack and chip with wear and then are difficult to keep in order. Some are also rather hard and fatiguing to stand on, though this drawback can be overcome somewhat by using mats of rubber, cork, or some other resilient material. The special paints now on the market make concrete floors easier to care for, less dusty, and more durable.

Linoleum is a very satisfactory covering for the kitchen floor. It is relatively durable, comfortable for the feet, and easy to clean. It is manufactured in a variety of colors, designs, and qualities; the better grades will be found most economical in the long run. Varnishing or waxing linoleum is said to protect the surface and make it wear longer.

Floor oilcloth is cheap and easily cleaned, but wears out quickly. Floor coverings, such as carpets and mattings, which hold dust and dirt, are unsuited to the kitchen.

Whatever the material of the kitchen floor, or the covering used on it, constant scrubbing and the excessive use of soap and water will injure the surface. Much care should be taken, therefore, not to drop food materials on the floor. Spreading papers where food is likely to be dropped or grease to be spattered will save labor in the end. A soft brush or dust mop will keep a floor in better condition than a broom and render mopping less frequently necessary. A dish mop of hotel size kept in a convenient place and used to remove drops of water or other liquids accidentally spilled will save frequent scrubbing of the entire floor, and when dampened and wrung nearly dry can be used to remove spots or dust. If so used it will often prevent dirt from being carried from one part of the room to another.



**WALLS AND CEILING.**

The commonest and most generally satisfactory material for the walls and ceiling of the farm kitchen is plaster. The mortar must be properly mixed and applied to prevent the development of cracks and blisters and injury to the surface finish. For the same reason, freshly plastered walls should be allowed to dry thoroughly before the finishing surface is applied. Instead of plaster, some of the composition boards that do not warp may be used. They may be painted or papered and varnished, but before this is done nail holes should be filled with plastic filler made for the purpose. Steel wall and ceiling coverings are durable when they are kept well painted to prevent rusting by steam. Tile and vitrified brick, well glazed and matched, afford an excellent wall surface, but they are costly. Metal tiles are cheaper and nearly as satisfactory.

The most desirable finish for walls and ceiling is one that will not peel off or crack and that can be easily washed or very cheaply and readily renewed. A good oil paint gives general satisfaction; it can be brushed off with a dry wall brush or cleaned more thoroughly with a damp cloth and mild soap. Wall paper, unless varnished, is very easily loosened by the steam from cooking. A wall covering resembling oilcloth is somewhat more expensive, but it is more durable, and has a smooth, washable surface. Water must be used very sparingly on a wall covering of this kind, for if it seeps in the seams the paper will be loosened.

The best color or tint for the kitchen walls is determined by the location and lighting of the room. Light colors are preferable for dark rooms, because they reflect and diffuse the light into darker portions of the room, while dark colors absorb a much larger proportion of the light. Where the principal exposure is toward the south, greenish grays are desirable, but if toward the north or east, with little opportunity for sunshine, the light yellows or creams are better. Two shades of brown often give a satisfactory finish.

**WOODWORK.**

The woodwork should be painted, or stained and shellacked. A final coat of enamel paint or outside varnish is desirable for such portions of the woodwork as need cleaning most frequently.

**LOCATION OF DOORS AND WINDOWS.**

The location of the doors and windows in a kitchen has much to do with making it a convenient and comfortable workshop.

Doors divide the wall space and establish paths of travel, thus influencing the placing of equipment, and should be no more numerous than necessary.

There should always be one door from the kitchen leading out of doors, either directly or, better, through a short passageway, and also an easy communication between the kitchen and the dining room. The doors between the kitchen, the dining room, and the pantry should be made to swing both ways, so that they may be easily opened when both hands are full. Such doors should have a glass panel, so that persons approaching from opposite directions can see each other and avoid colliding, and they should also be provided with some form of door check so that they can be kept wide open when so desired. A hook and staple will answer the purpose, if one does not care to use some one of the special commercial devices.

Glass panels in doors leading into dark closets or passageways will also be found convenient, as will glass transoms over the doors. If there is considerable danger of breakage, wire glass should be used, and frosted or other translucent glass can be selected when it is desirable to cut off the view.

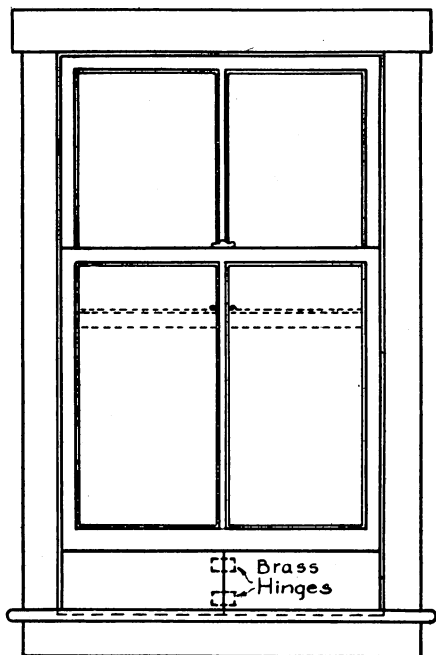
Windows serve the twofold purpose of supplying light and ventilation and, in general, will do this most effectively in the kitchen if placed rather high, about  $3\frac{1}{2}$  feet above the floor. The air of the room rises as it becomes heated, and to let it escape there should be an outlet close to the ceiling. Broad, short windows of either the double-hung or the casement type, not more than a foot below the ceiling, are, perhaps, best for this purpose, and, to save space, may be over cupboard, table, or sink. If the upper sashes of the double-hung windows are equipped with round metal sockets of a type that will prevent the hook from slipping, they can be easily lowered and raised with a window pole having a right-angle metal hook. When the carpenter is working on the house, a supply of poles should be made and kept on hand where they are frequently needed. Besides looking very attractive, the chief advantage of the casement window is that the entire space is effective for ventilation.

Some of the popular types of architecture require windows having many small panes of glass to each sash. Although such windows are somewhat more difficult to clean than those having one or two large panes, this disadvantage may be overlooked because of the pleasing effect.

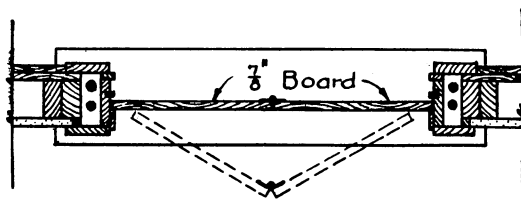
Window shades or blinds are necessary at sunny windows. At least one window should be equipped with an adjustable shade, which can be pulled over either the upper or lower sash or both. Heavy window draperies are not suitable in a kitchen; if there are any curtains they should be plain and of inexpensive cotton material, so that they can be easily washed and frequently renewed.

## METHODS OF VENTILATING, HEATING, AND ARTIFICIAL LIGHTING.

The housekeeper has to spend many hours a day in the kitchen, and sufficient light and ventilation are necessary not only to conserve her health but to enable her to perform her work most efficiently.



INTERIOR ELEVATION



PLAN

FIG. 1.—Hinged window ventilator. By means of this device fresh air can be admitted into a room without drafts.

In the Northern States during cold weather good ventilation may be provided by placing a hinged board, which is as long as the width of the window and any desired width, beneath the lower sash of the window and shutting the lower sash upon it (fig. 1). This arrangement will admit air between the two sashes without drafts.

Very good ventilation, without great loss of heat, may be obtained by the use of window screens covered with cotton cloth. These have the advantage of allowing the outside air to enter without producing a draft, and they also keep out dust and dirt. The window of the pantry or storeroom, which is to be kept open in winter, might well be covered with a screen of this kind.

Double, or storm, windows are an advantage in cold regions, especially on cold sides of the house, as they save fuel by keeping out much of the cold air which would otherwise come in through and around the windows. One or more of the double windows in each room should be provided with a slide which can be opened when more ventilation is desired. Such windows, in a large measure, prevent the glass from becoming coated with frost and the house plants, which are often kept in the window, from becoming

frost bitten. The double windows should be fastened in place with screws and screw eyes, with hooks and staples, or in some similar way, so that they may be easily removed in summer; they should be fitted to the individual windows and numbered or marked when they are taken down so that it will be easy to see where each belongs when the time comes to put them on again.

Much work in the kitchen must be done by artificial light, especially in parts of the country where the days are very short during the winter, and every effort should be made to devise an adequate system so that the housekeeper and her helpers will not need to strain their eyes and nerves because of lack of light. A central lighting system is more convenient than lamps, but even with it thought must be given to placing the lights to the best advantage. The stove, the sink, the worktable, and, if possible, the ice box, should be well lighted. Reflectors behind wall lamps or lights will help in throwing the light where it is most needed, and light, smooth walls, ceiling, and furnishings reflect light while dark, rough ones absorb it.

#### PORCHES AND SCREENS.

In regions where the winter is severe a storm porch prevents a great deal of cold from coming in when the kitchen door is opened and can be used to good advantage on the farm. The walls, sides, and roof should be tightly made of matched boards, and should fit closely together; if fastened together with screws they may be easily taken apart in the spring and stored until fall. A window should be provided in the door or in one side to admit light. A good plan is to have the storm porch consist of a permanent light wooden framework to which the solid sides can be screwed. These can be replaced in summer with screens and the solid door with a screen door. The doorway into the house should also have a screen door. This provides for double screening of the outside door, which is much more efficient than the single screen door in keeping out flies. Such a "screen porch" is particularly desirable in the warmer sections of the country, where the "fly season" is long. Where a storm porch is desirable but not feasible, an extra door of matched boards attached to the outside of the doorframe partly answers the purpose, although it is less convenient.

All windows and outside doors should be screened. Cloth or wire netting tacked on the outside of windows will serve, but it is much better to have wooden or metal frames the full size of the windows covered with wire netting having 16 meshes to the linear inch, which will keep out both flies and mosquitoes. Each screen should be fitted to its special window, and both screens and windows should be so numbered that they may be matched up without difficulty. Springs,

a weight and pulley, or other self-closing devices are very desirable for screen doors, which should close tightly and preferably be latched.

For summer in the Northern States and for all the year use in the warmer regions, there should, if possible, be a screened porch opening from the kitchen on the side that is not exposed to the sun during the hottest part of the day. In warm weather much of the kitchen work may be done on this porch and meals also might be served there. There are some advantages in having the screened porch on the side toward the garden and opening into it. But, on the other hand, if it is completely screened, has no outside door and no openings, except into the kitchen, and is large enough to afford space where dish towels and mops can be dried, supplies stored, and garbage and other forms of waste kept temporarily, the number of times the outside kitchen door must be opened will be reduced and thus the danger of letting flies in will be lessened. In cold regions the screens can be replaced in winter with window sash or solid sides and the porch used as an extra storeroom.

Bronze wire screening guaranteed to be rustless is perhaps the most durable kind, but is comparatively expensive. Monel metal and galvanized wire are other types of screening less expensive than bronze, but more rust resistant than the ordinary japanned wire. Monel metal has the added advantage of not having the sheen that makes bronze and galvanized wire screening rather conspicuous. The cheaper steel wires can be made more durable by painting. Cotton netting will keep out flies and other insects, but is easily torn and has to be renewed frequently.

### **WATER SUPPLY.**

An adequate water supply in a kitchen is as essential as a fire to cook with. Water is needed in almost every step of the preparation of food and is indispensable in cleaning utensils and other equipment. It is a waste of the time and energy of the housekeeper and her helpers to carry water from an outdoor pump or well when in many cases it might be piped in and a sink and drain installed for carrying off waste. Directions for installing various kinds of water supply and sewage disposal systems are given in other publications of this department.<sup>2</sup>

### **SELECTION AND PLACING OF EQUIPMENT.**

In selecting kitchen equipment, only that which is most convenient and durable should be purchased. The worktable, ice box (or other

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<sup>2</sup> Farmers' Bul. 941, Farm Home Conveniences. Farmers' Bul. 927, Water Systems for Farm Homes.

place for the storage of food supplies), dish cupboard, stove, sink, and set tubs, if any, should be so placed that the tasks in the kitchen may be performed most conveniently and with the least expenditure of time and energy, which means they must be near together, but must not interfere with free passage from one to the other. The location of the last three in particular depends to a certain extent upon that of the chimney and the water pipes.

In performing various tasks in the kitchen certain distances must be traveled, some of them much oftener than others. For instance, it is necessary to go from the ice box to the worktable or pantry, from worktable or pantry to the stove or sink, and in some houses from the pantry to the worktable very many times. It is evident, therefore, that, in order to shorten the distances traveled, ice box, table, sink, and stove should not be far apart and at the same time should be in close proximity to the dining room and pantry. If there is no dining room and the food must be both prepared and eaten in the kitchen, this work equipment should be grouped in one end of the room near the pantry, and the other part reserved for a dining room.

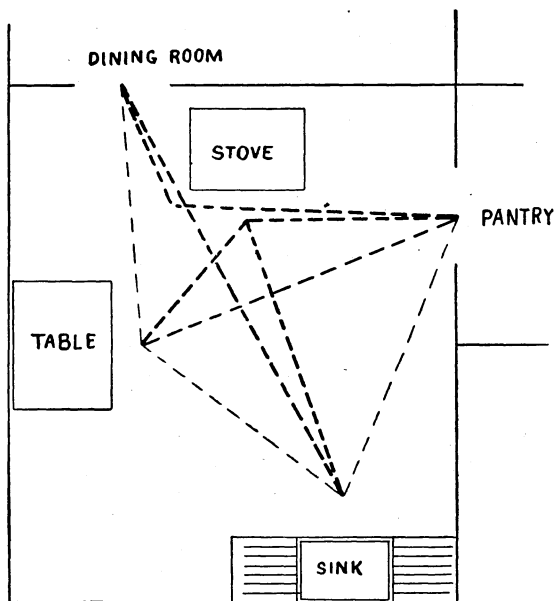


FIG. 2.—An arrangement of kitchen equipment wasteful of the worker's time and energy. The dotted lines represent the paths traveled in the preparation, service, and cleaning-up of a meal, the heavier lines being those most frequently traveled.

How time and strength may be wasted in the various steps of these processes by the improper location of pantry, stove, table, and sink with reference to the dining room is illustrated in figure 2. The distances may be materially shortened and time and labor saved by bringing table, stove, and sink near together in one corner of the room near the pantry and dining room, as shown in figure 3.

Any housekeeper can find out whether her equipment is placed to the best advantage by drawing a similar plan of her own kitchen. It will take only a few minutes and may lead to changes that will save hours of her time, not to mention energy less easy to measure.

## PROPER HEIGHT OF THE WORKING SURFACE.

The top of the stove and worktable, the bottom of the sink, or any other surface upon which a given task is to be performed should be at such a height from the floor that the housewife can work easily without being obliged to raise her arms or to stoop unnecessarily. If the surface is too low, as is often the case, the worker must continually raise and lower the upper part of her body with each motion or remain in a bent position until the muscles are cramped; while if it is too high, she must lift her arms in such a way as to bring unnecessary strain upon the muscles. Carefully conducted scientific experi-

ments have shown that more energy is used when equipment is not of the proper height, and every one knows that it makes kitchen tasks more fatiguing.

It would be a great advantage to have a kitchen table made so that the top could be raised or lowered at will, because it could then be adjusted to the person using it and to the task being done. No entirely satisfactory scheme for this has been worked out as yet, but a table may be raised or lowered as

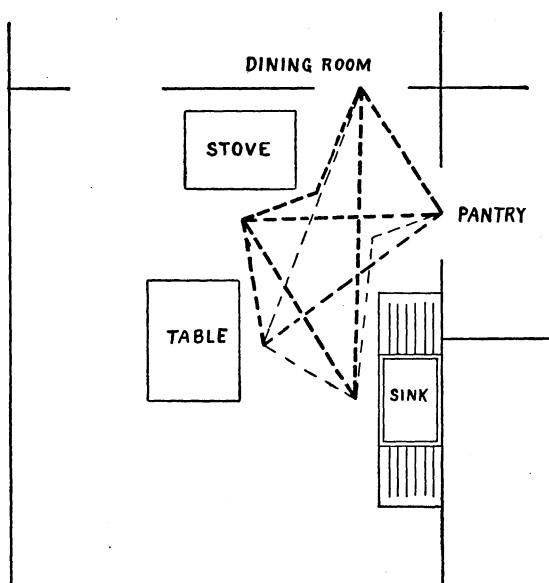


FIG. 3.—A rearrangement of the equipment in the kitchen illustrated in figure 2. The distances to be traveled have been reduced by moving the table and the sink nearer the stove and the pantry and by cutting another door into the dining room.

the need may be by placing it upon blocks of wood, preferably hollowed on top to prevent the legs from slipping or, better, by having the legs spliced. If a table is too high for all purposes, the legs may be easily cut off. Also one table may be set on a larger low one equipped with casters, the lower table thus forming a convenient shelf for utensils and supplies. Still another plan is to have several tables of different heights or hinged shelves folding against the wall, so that each task can be performed at the most convenient height.

If none of these plans is feasible a table for general use should be selected of such height that the majority of the kitchen tasks may be performed upon it with a minimum of stooping or unnecessary mus-

cular strain. In general such a table should be from 32 to 36 inches high, varying, of course, with the height of the worker, who should test the matter for herself by trying the same task for a half hour or more on tables, packing boxes, or shelves of different heights and determine at which height she can work with the least strain or fatigue. Tables for ironing or other processes where considerable pressure is necessary should be somewhat lower than the table for general use, in order that the weight of the body may be utilized in obtaining the pressure. They should, however, not be so low that the worker will have to bend too much.

The stove if not of convenient height can be blocked up or placed on shorter legs.

Most sinks, especially, are too low for even a woman of medium height to wash dishes without stooping, and it would be better to have a box or stool for a child or short person to stand on than to oblige a tall woman to stoop to a low sink. The bottom of the sink should be not less than 30 inches from the floor, and 31 inches is better for a woman of average height. The "built-in" sink can be placed at the proper height as easily as any other. If there is no way to raise a sink which is too low, the dishpan may be raised to a convenient height by placing it on a rack or some other utensil.

#### STOVE.

Before choosing a stove or range its proper position in the kitchen should be determined. For the comfort and convenience of the workers the stove is generally placed somewhat apart from the other equipment. Allowance must be made for opening the oven door readily. The oven is usually on the right and the fire box on the left, but in some stoves this is reversed. Where room is limited an oven door which opens downward instead of to right or left is a convenience. Room must be allowed for the hot-water boiler, if there is one. It need not, however, be placed at the side of the range, but may be suspended from the ceiling, though the horizontal boiler is not so effective as the vertical type. It must, however, never be placed below the level of the range, as the water will not circulate and heat satisfactorily under this condition. Since a boiler gives off considerable heat, it may be economical sometimes to put it a little distance from the stove and where this heat may be utilized, as, for example, in the bathroom.

The floor under the stove or range should be made of or covered with some fireproof material. A built-in base of cement or brick is best, but when this is impossible some one of the composition materials, made of a mixture of cement and asbestos, which can be bought by the square foot, will do very well as a protection for the floor and



also for the walls back of the stove. Sheets of metal placed directly over wooden walls near the fire box of a stove are not sufficient protection. Some architects recommend a layer of plaster preferably on metal laths and separated from the wooden wall by metal furring. As an added precaution, sheet metal should be blocked away from the plaster with metal pieces.

The kind of cookstove chosen will be determined largely by the available fuel supply, and its size by the amount of work to be done with it. It should be of reliable make, not only to insure good construction but also to make sure that parts can be easily renewed as needed. A larger range than is needed for cookery is often selected in many homes where the kitchen fire is used for cooking and also for heating in cold weather. It would be wiser in many cases to use a liquid fuel stove in summer for cooking purposes or else to have a small range for cooking and an additional heater for warming the kitchen in winter, thus saving fuel and avoiding the overheating of the house in summer. In houses that have a furnace or other central heating system the kitchen should be provided with a radiator or hot-air register for heating purposes. It will then be possible to use a liquid-fuel stove for cooking in winter as well as summer, and the price of a kitchen stove or range may be saved if desired, as both types of stoves will not be needed.

#### SINK.

The size of the family and of the kitchen must determine the size of the sink, but a short sink with ample table and shelf room near it may be more convenient than a long sink. Two smaller sinks, one for the table dishes near the dining room and the other for general use in the kitchen, are very convenient.

The material of the sink should be the best available, nonabsorbent of grease as well as of moisture, and there should be no cracks nor square corners to increase the work of keeping it clean. A wooden sink and sink spout, even when they receive an annual coat of paint, will absorb moisture and grease, which attract insects and are likely to be swarming with bacteria and to "sour" and have an unpleasant odor. Even drain boards of wood are not recommended unless they have a waterproof finish of varnish, oil, or paint. If a wooden sink is necessary, it is better to have it metal lined, provided the sheets of metal, which is usually tin, zinc, galvanized iron, copper, or lead, are soldered where they are joined and all parts of the sink, including the tops of the sides, are covered with the metal, so that there is no chance for the wood to absorb moisture. Another plan is to have a cement sink built into a wooden frame and lined with sheet copper or tin.

Iron sinks of good quality are superior to wooden ones, since they do not absorb grease or moisture and are durable. They are easily kept clean if smooth, and they will soon wear smooth, but they have the disadvantage of neither showing dirt nor proclaiming their cleanliness. Unless the front is protected by a strip of wood the dresses and aprons of the worker are likely to become stained with iron rust.

A soapstone or a slate sink is durable, but sometimes becomes uneven with wear, and if this happens much brushing and scrubbing are required to remove the sand and grease that gather in the depressions when vegetables are cleaned, dishes washed, etc. Like iron, they do not show whether they are clean or not.

Enameled-iron sinks are smooth, last well with careful use, and may be easily kept clean, but they are more expensive than iron. Porcelain sinks are similar to the enameled ones, but their price is almost prohibitive. Perhaps the ideal plan would be to have an enameled or porcelain sink for the tableware in the kitchen or the pantry near the dining room and an iron or soapstone sink for the heavier kitchen ware.

The double sinks, with one basin for washing and another for draining dishes, are very convenient, but unfortunately they are relatively expensive. A small sink with a rubber stopper for its escape pipe may be used as a dishpan when two sinks are used.

The wall behind the sink should be covered with some material that will not absorb water or grease and that is high enough to hold the faucets if there are any. A solid back of the same material as the sink reduces the number of places which collect dirt and attract insects. Better than either of these, however, is a sink and back made in one piece. Sheet zinc may be used when a solid back can not be obtained, but it must be carefully fitted and nailed in place.

The place of the sink, like that of the stove, is often apparently settled by the builders of the house without reference to the house-keeper's convenience and the position of the other kitchen furniture. If there are water pipes or drainpipes to be considered, their position can be more easily changed than that of the chimney, and should be so changed if convenience demands. The sink is usually placed with its long side against the wall, but this is not always the best plan. Some modern houses have the sink near the middle of the kitchen, so that it may be used from both sides instead of from one only, though this is likely to be a rather expensive arrangement. Or, it may be convenient in some rooms to have the end against the wall and the faucets there, if there is running water in the house, as there should be, if possible. This reduces the danger of breaking dishes by hitting the projecting faucets. This danger may also be

reduced by attaching short pieces of rubber hose to the faucets. The sink and the stove should be near together to save a long journey across the kitchen when a kettle must be filled or emptied, but not so near that the heat will be oppressive when working at the sink. It should be where there is good light, but not across the main window of the kitchen, and should always be placed at a height most convenient for the worker, as discussed on page 14.

It is important that the sink stand true and level, for if it does not there may be a point lower than the drain where water can settle. Many good sinks are built with a slight slope toward the drain. In case water is scarce and it is difficult to flush the drainpipe properly after the sink has been used, it may be better to wash dishes on the table and carry away the waste water. Openings to all pipes in tubs and sinks should be screened to prevent clogging of the drains.

The plumbing should be easy of access, and, therefore, it is better that there should be no closet under the sink. Hooks or shelves under the sink or near it will accommodate everything usually kept in the dark, often musty, "sink closet" of older kitchens. A "sink closet" can be kept sweet and clean, but it means extra work to do it. It is far wiser to have things in sight and in order than to have the extra work of keeping the "sink closet" clean or run the risk of having it an untidy place, which is no better just because it is out of sight. If there is a shelf under the sink it should be from 4 to 6 inches narrower than the sink and at such a height that the floor under it can be easily cleaned.

If possible there should be a wide shelf or drain board on each side of the sink on the level with the rim of the latter, one to receive soiled dishes and the other clean ones. Some housekeepers have these covered with zinc, but, as in all other places where it is used, the metal must be neatly fitted and closely fastened down so as not to leave any chance for loose, rough edges, or to provide breeding places for insects or a lodging place for grease and dirt. If there is no place for permanent shelves, sliding or hinged shelves may be used. A right-handed person usually holds the dish in the left hand while washing or wiping it, and the dishcloth, dish mop, or towel in the right hand. It is convenient, therefore, to have the dishes move from right to left as they pass from dishpan to rinsing pan, and from rinsing pan to drainer and tray. This should be kept in mind and provision made for soiled dishes at the right and for a drain board at the left of the sink.

#### TABLES, SHELVES, CLOSETS, ETC.

The worktable in the kitchen should be plain, substantial, and of such material that it is easy to clean and keep in good condition. Most kitchen tables have a shallow drawer for small utensils; while

others have drawers, draw boards, and bins for storing supplies, and are known as pastry tables. Where storage space is limited, the latter will be found particularly useful.

Unfinished wooden tables require much scrubbing, and under constant use become stained and unsightly. Varnishing or painting and enameling the lower parts to match the woodwork or the other furniture and covering the top with a nonabsorbent, easily cleaned material saves much labor in the end. Sheet zinc is often used on table tops, and should be brought well over the edges and fitted and tacked carefully so that water can not get

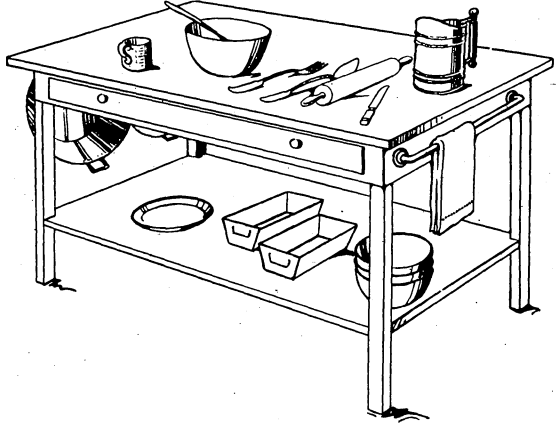


FIG. 4.—Kitchen table with drawer, shelf, hooks, and rod for working equipment.

underneath and no sharp edges are exposed. Zinc has the advantage of being proof against hot utensils, but is affected by both acids and alkalis, and is therefore rather hard to keep in condition and not a suitable material to come in contact with many foods. Oil-cloth is also widely used for this purpose, but linoleum, although more expensive, is far more durable, especially when fastened to the table with waterproof cement.

Porcelain and glass topped tables are very attractive and easy to clean, but are relatively expensive and must be used carefully. Separate enameled-ware tops in various sizes to fit over wooden tables are also on the market and are very convenient and not expensive. Marble-topped tables have long been considered especially good for pastry making, but are now almost prohibitive in price, and a polished marble slab from an old piece of furniture laid on an ordinary table answers the purpose fully as well.

In planning the storage places in the kitchen and pantries, the main points to be considered are to keep each article near the place where it is most frequently used, to place the closets, shelves, and drawers where they are easily accessible and easily kept clean, where they will not be in the way, and where, as far as possible, they will utilize space otherwise wasted. To insure cleanliness they should be made of good wood, free from holes, knots, or other roughness likely to catch dirt and harbor insects. A further help in making

shelves easy to clean is to leave a small space, say half an inch wide, between the back edge of the shelf and the wall.

Narrow shelves sometimes economize space better than wide ones, for all the articles on them can be easily reached, whereas on the wide ones either part of the shelf room is wasted or the things in front must be moved to get at those behind. A shelf not more than 4 inches wide will conveniently hold spices, flavoring extracts, baking powder, and materials of this kind. Fitting deep shelves with shallow boxes or "trays" (light wooden boxes with sides about 4 inches high and with a knob or handle on the front end so they can be conveniently moved) is often worth while. These shallow boxes can be filled with bottles, cans, and other small articles neatly arranged. To take out the tray, select the article one wishes, and replace the tray, is much more convenient than moving a large number of things about on the shelf until one finds something which may be at the back of it, and leaves the articles in much better order. Such a device can be made at home, and has been tested and proved its usefulness.

Corner closets furnish an excellent method of utilizing space often of little value in the room otherwise. The triangular space is not very convenient for dishes, but serves well for a broom and cleaning closet.

It is often poor economy of space to put shelves all the way up the wall of a high room, for even with a stepladder considerable effort is required to reach the things at the top. Certainly no articles used at all frequently should be kept on high shelves. Practical housekeepers usually keep on open shelves dishes and supplies which are frequently used or from which any dust can be readily removed, and in closed cupboards those which are seldom used or which dust might injure. However, the general tendency nowadays seems to be away from closed cupboards. If doors are used, ample space should be allowed in the room for them to swing out. If space is limited, two narrow doors may be better than one wide one, or the doors may be made to slide instead of swing. Where any kind of door is impracticable, a washable curtain or a window-shade may be used. Glass doors have the advantage of displaying the contents of the shelves but the disadvantage of being easily broken. In the cellar or cool pantry, frames with wire netting may be used in place of doors as a protection against vermin.

For general use in the kitchen, drawers are less convenient than shelves, because more work is required to open and shut and to clean them; they are also more expensive than open shelves. For towels and cloths, however, a few are almost indispensable. Clean old cloths which may be thrown away after use, new cheesecloth for mis-

cellaneous purposes, squares of scrim or flannel for straining, etc., and old newspapers for wiping the stove and for other uses will be found a great convenience. A chest of drawers on casters or a small bureau is often more convenient than built-in drawers. For most kitchen purposes shallow drawers are better than deep ones, because the contents require less handling. One of the kitchen cabinets now on the market may be found less expensive to install than its equivalent in closets, shelves, bins, etc., and it will often save much of the labor of preparing meals by grouping in one place the ingredients, appliances, and working space required. More often, however, the

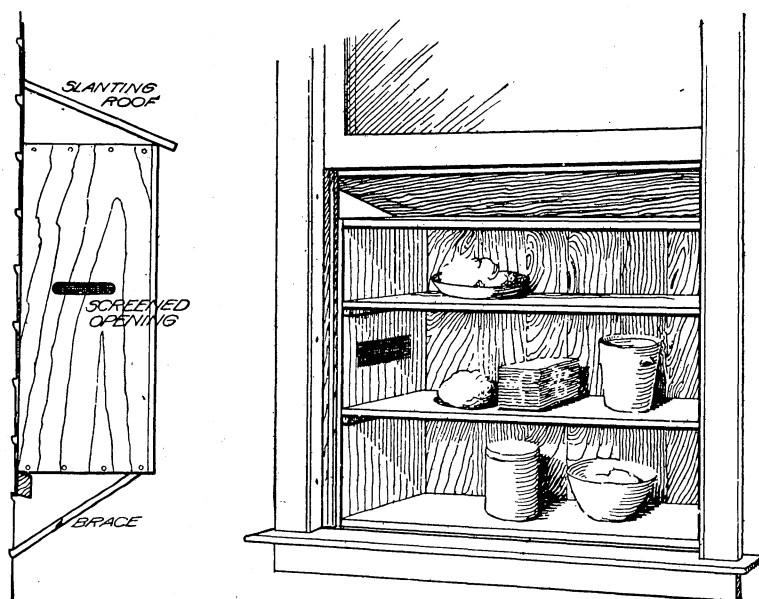


FIG. 5.—Cold box.

same amount of money paid to a local carpenter will supply more shelf space distributed according to the housekeeper's needs.

Other equipment and labor-saving devices for the kitchen are described in another publication of the department.<sup>3</sup>

### THE KITCHEN AS LAUNDRY.

Sometimes a kitchen is used as a laundry, but from the sanitary standpoint it is wiser, expense permitting, to have separate rooms for these two purposes (p. 5). However, on account of extra expense for plumbing, fuel, and extra labor, it may be desirable to install two set tubs close to the kitchen sink. These are generally covered when not in use, and thus serve as a sink table.'

<sup>3</sup> Farmers' Bul. 927, Farm Home Conveniences.

In cases where set tubs are out of the question, it is sometimes possible to have a low sink with a drain and to place ordinary wooden tubs over this. Each tub should have an opening in the bottom, fitted with a cork or rubber stopper for the easy removal of water. A piece of hose attached to the faucets will be convenient in filling the tubs and, where there is no water heater, in filling kettles or boilers on the stove. A hose with a funnel on one end, with a wire to attach it, may often be made to serve the same purpose where a kitchen pump is depended upon as a water supply.

Other suggestions for the arrangement of the laundry room, as well as directions for laundering the various kinds of fabrics, are given in another bulletin of this series.<sup>4</sup>

### POINTS TO REMEMBER.

Convenient arrangement of the kitchen and its equipment means lighter work and shorter hours for the housekeeper and her helpers.

Plenty of light and good air are essential to good results in the kitchen and to the comfort of those working there.

Running water and a drain for carrying off waste save the housekeeper many steps and many hours.

Convenient location of pantry, dining room, and storeroom with reference to the kitchen and, so far as possible, on the same floor level will also save many steps.

A separate laundry, which may be combined with an entry and wash room for the men and children coming in from out of doors, is more sanitary than using the kitchen as a "general-purpose" room.

Washable surfaces for floor, walls, ceiling, and woodwork, obtained by oiling, painting, or covering with suitable material, makes them easy to clean. Unfinished wood floors, moldings, and table tops are poor economy; they are hard to clean and soon show stains and signs of wear.

Durable, convenient equipment is most economical and should be so placed that there is the least possible strain on the worker's muscles as she performs her tasks. Many of the tired backs are the result of improperly placed kitchen equipment.

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<sup>4</sup> Farmers' Bul. 1099, Home Laundering.

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